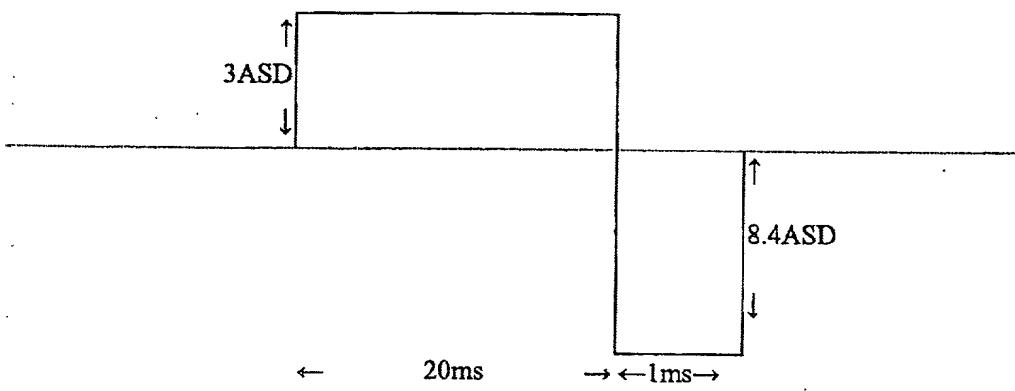


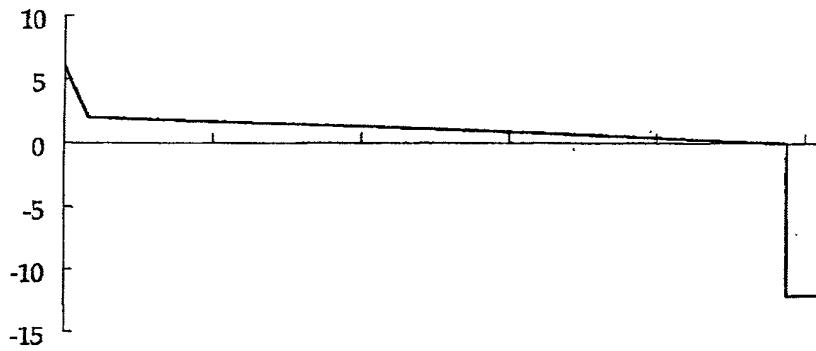
**FIGURE 1**



**Conditions - Square wave (with agitation)**

Forward current density	3ASD
Reverse current density	8.4ASD
Forward current on time	20ms
Reverse current on time	1ms
Plating time	80 min

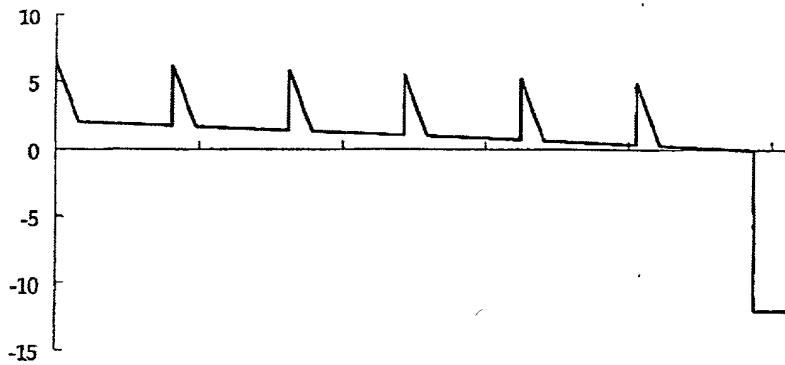
**FIGURE 2**



Conditions - Triangular wave 2ASD with 12ASD reverse current density (with agitation)

Triangular base height	2ASD
Spike height	4ASD
Spike width	0.67ms
Spike distribution	At the start of forward current
No. of spike	1
Reverse current density	12ASD
Forward current on time	20ms
Reverse current on time	1ms
Plating time	315 min

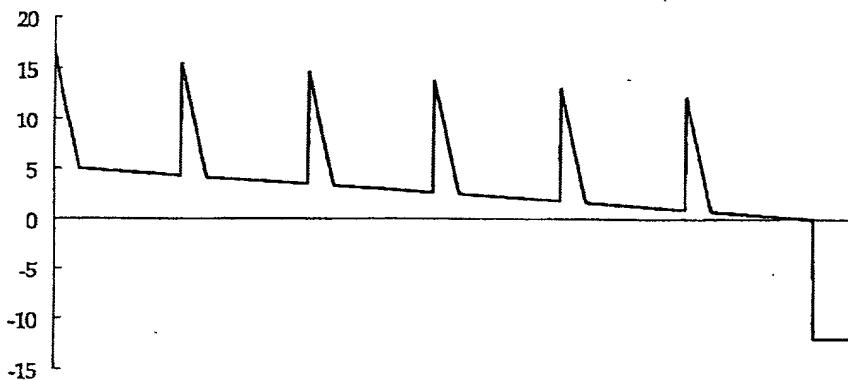
FIGURE 3



Conditions - Triangular wave 2ASD with multi-peak and 12ASD reverse current density (with agitation)

Triangular base height	2ASD
Spike height	4.5ASD
Spike width	0.67ms
Spike distribution	Evenly distributed
No. of spike	6
Reverse current density	12ASD
Forward current on time	20ms
Reverse current on time	1ms
Plating time	315 min

FIGURE 4



Conditions - Triangular wave 5ASD with 11.25ASD multi-peak and 12ASD reverse current density 80min(with agitation and vibration)

Triangular base height	5ASD
Spike height	11.25ASD
Spike width	0.67ms
Spike distribution	Evenly distributed
No. of spike	6
Reverse current density	12ASD
Forward current on time	20ms
Reverse current on time	1ms
Plating time (with agitation and vibration)	80 min

**FIGURE 5**

Hole diameter(μm)	Throwing Power					Microsection Photo		
	150	100	75	50	35	100	75	50
Waveform 1 Square wave (with agitation)	73.18	75.64	68.24	50.35				
Waveform 2 Triangular wave 2ASD with 12ASD reverse current density (with agitation)	103.15	91.28	78.4	52.76				
Waveform 3 Triangular wave 2ASD with multi-peak and 12ASD reverse current density (with agitation)	129.13	135.59	125.54	70.52				
Waveform 4 Triangular wave 5ASD with 11.25ASD multi-peak and 12ASD reverse current density (with agitation and vibration)	94.42	82.32	84.55	70.52				

TABLE 1